

IN THE CLAIMS:

Please amend the claims as shown below. The claims, as currently pending in the application, read as follows.

1. to 30. (Canceled)

31. (Currently Amended) An image processing apparatus for extracting a face image area, comprising:

input means for inputting image data that has been converted into coefficients based on a spatial frequency; and

extraction means for extracting a face specific image area of the input image by using low frequency component data of the image data input by said input means,

wherein said extraction means comprises:

generation means for generating binary bitmap data by determining from the low frequency component data an area whose color component value falls within a predetermined range; and

matching means for applying pattern matching processing using a face shape to the binary bitmap data so as to extract the face image area extracts the specific image area by specifying an image area having color component values within a predetermined range and then determining whether or not the specified image area has a predetermined shape.

32. (Currently Amended) The apparatus according to Claim 31, wherein the coefficients of the input image data are obtained by wavelet conversion, and said extraction means extracts the specific face image area by using the lowest frequency coefficients of said coefficients.

33. (Currently Amended) The apparatus according to Claim 31, further comprising quantization means for quantizing the coefficients of the input image data, wherein said quantization means changes quantization characteristics based on the specific face image area extracted by said extraction means.

34. (Previously Presented) The apparatus according to Claim 33, wherein the coefficients of the input image data are obtained by wavelet conversion, and said quantization means determines quantization coefficients for each of spatial components obtained by the wavelet conversion so that a quantization step for higher frequency components is larger than a quantization step for lower frequency components.

35. (Currently Amended) The apparatus according to Claim 31, wherein said extraction means searches a central portion of the input image for the specific face image area prior to searching other areas of the input image.

36. (Currently Amended) An image processing method for extracting a face image area, comprising the steps of:

an input step of inputting image data that has been converted into coefficients based on a spatial frequency; and

an extraction step of extracting a face specific image area of the input image by using low frequency component data of the image data input at the input step,

wherein said extraction step comprises the steps of:

generating binary bitmap data by determining from the low frequency component data an area whose color component value falls within a predetermined range; and

applying pattern matching processing using a face shape to the binary bitmap data so as to extract the face image area ~~extracts the specific image area by specifying an image area having color component values within a predetermined range and then determining whether or not the specified image area has a predetermined shape.~~

37. (Currently Amended) The method according to Claim 36, wherein the coefficients of the input image data are obtained by wavelet conversion, and said extraction step extracts the specific face image area by using the lowest frequency coefficients of said coefficients.

38. (Currently Amended) The method according to Claim 36, further comprising a quantization step of quantizing the coefficients of the input image data, wherein said quantization step changes quantization characteristics based on the specific face image area extracted by said extraction step.

39. (Previously Presented) The method according to Claim 38, wherein the coefficients of the input image data are obtained by wavelet conversion, and said quantization step determines quantization coefficients for each of spatial components obtained by the wavelet conversion so that a quantization step for higher frequency components is larger than a quantization step for lower frequency components.

40. (Currently Amended) The method according to Claim 36, wherein said extraction step searches a central portion of the input image for the specific face image area prior to searching other areas of the input image.

41. (Currently Amended) A computer-readable storage medium on which is stored a control program for causing a computer to implement an image processing method for extracting a face image area, the method comprising the steps of:

an input step of inputting image data that has been converted into coefficients based on a spatial frequency; and

an extraction step of extracting a face specific image area of the input image by using low frequency component data of the image data input at the input step,

wherein said extraction step comprising the steps of:

generating binary bitmap data by determining from the low frequency component data an area whose color component value falls within a predetermined range; and

applying pattern matching processing using a face shape to the binary bitmap data so as to extract the face image area extracts the specific image area by specifying an image area having color component values within a predetermined range and then determining whether or not the specified image area has a predetermined shape.

42. (Currently Amended) The computer-readable storage medium according to Claim 41, wherein the coefficients of the input image data are obtained by wavelet conversion, and said extraction step extracts the specific face image area by using the lowest frequency coefficients of said coefficients.

43. (Currently Amended) The computer-readable storage medium according to Claim 41, further comprising a quantization step of quantizing the coefficients of the input image data,

wherein said quantization step changes quantization characteristics based on the specific face image area extracted by said extraction step.

44. (Previously Presented) The computer-readable storage medium according to Claim 43, wherein the coefficients of the input image data are obtained by wavelet conversion, and said quantization step determines quantization coefficients for each of spatial components obtained by the wavelet conversion so that a quantization step for higher frequency components is larger than a quantization step for lower frequency components.

45. (Currently Amended) The computer-readable storage medium according to Claim 41, wherein said extraction step searches a central portion of the input image for the specific face image area prior to searching other areas of the input image.